



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,908	11/21/2003	Randall K. Morse	GCSD-1460 (51341)	1640
27975	7590	09/11/2006	EXAMINER	
ALLEN, DYER, DOPPELT, MILBRATH & GILCHRIST P.A. 1401 CITRUS CENTER 255 SOUTH ORANGE AVENUE P.O. BOX 3791 ORLANDO, FL 32802-3791			VALENTIN, JUAN D	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 09/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

<b>Office Action Summary</b>	<b>Application No.</b> 10/718,908	<b>Applicant(s)</b> MORSE ET AL.	
	<b>Examiner</b> Juan D. Valentin II	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION*****Claim Rejections - 35 USC § 103/Response to Arguments***

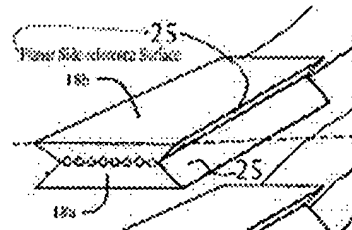
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 4-12, 14, 16-18, 24, 26-28, 31-39, 42, & 43 rejected under 35 U.S.C. 103(a) as being unpatentable over Naghski (USPN '767 B1) in view of O'toole et al. (USPN '400 B2, hereinafter O'toole).

**Claims 1, 12, 14, 16-18, 24, 26, 27**

Naghski discloses in conjunction with Figs. 1, 2, & the picture included below, an optical connector adapter 10 for interfacing waveguide devices comprising a substrate 18a & 18b comprising at least one fiber in a groove for transporting optical signals, and having opposing ends, a top reference surface and a side reference surface (angled edges) 25 aligned relative to said at least one optical waveguide, a carrier bracket 19 received over each end of the substrate 18, and including substrate alignment fiducials 17 for aligning the substrate relative to the carrier brackets 14 & 19, and a substrate carrier 11 that receives said substrate and carrier brackets 19 and having carrier alignment fiducials 12 for aligning the substrate carrier and carrier brackets for interfacing waveguide devices thereto (col. 2, lines 64-66, col. 4, lines 18-28, & col. 3, line 25-col. 4, line 67).



It is the position of the examiner that the term “optical coupler” as claimed by applicant is extremely broad and not well defined within the application as originally filed. The term can encompass many different varieties of light coupling means within the field of telecommunications, one of which could be the device of Naghski mated directly to another similar device in order to couple light between the two or an optical connector could be separate device with which two different optical connectors must mate to in order to couple light between the two connectors. These are just two types of devices that could read on the claimed term “optical coupler”.

Naghski substantially teaches the claimed invention except that it fails to show an optical coupler comprising a prism (claim 14), and plurality of lens (claim 16) including GRIN lens (claim 17, collimating lens) to couple the optical connector to another optical connector. O’toole shows that it is known to provide an optical coupler comprising a prism (claim 14), and plurality of lens (claim 16, col. 11, line 47-col. 12, line 58) including GRIN lens (claims 17 & 27, collimating lens, col. 13, lines 3-47) to couple the optical connector to another optical connector using alignment fiducials extending from the side (claims 12 & 24) of the optical coupler (Figs. 1 & 3, abstract, col. 7, line 54-col. 8, line 12) for an optoelectric module. It would have been obvious to someone of ordinary skill in the art to combine the device of Naghski with the optical coupler of O’toole for the purposes of providing coupling of a high-density fiber array to optoelectronic devices (OED) (O’toole, col. 3, lines 35-41).

Naghski further discloses the added limitation wherein the optical coupler is received the top reference surface of said substrate for coupling with said at least one optical waveguide. It is the position of the Office that the coupling surface of Naghski is the top reference surface. An

Art Unit: 2877

axis has not been defined within the claim or the reference, one of ordinary skill in the art at the time of the claimed invention could orient the connector of Naghski in view of O'Toole in such a way that the connector of O'Toole couples to the "top reference" surface of the connector disclosed by Naghski, therefore reading on applicants claimed limitation.

#### **Claims 4 & 5**

Naghski as applied above further discloses an optical connector adapter wherein said substrate 18 comprises a substrate holder having at least one groove formed within said top reference surface for receiving said at least one optical waveguide (optical fiber), wherein the waveguide is an optical fiber (col. 2, lines 64-66 & col. 4, lines 18-28).

#### **Claims 6 & 20**

Naghski as applied above further discloses the use of an optical fiber, however is silent as to the particular chemical composition of the optical fiber core. It is obvious to someone of ordinary skill in the art at the time of the claimed invention that different types of fibers having different chemical compositions will be chosen to satisfy the needed parameters for a particular telecommunication system. In light of the applicants disclosure, there is no critically distinguishing optical fiber core composition feature in the applicants disclosure that exemplifies novelty over prior art disclosure. Therefore producing the same results as the applicant's limitation, therefore the reference of Naghski in view of O'toole reads on applicants claimed limitation.

#### **Claims 7 & 21**

Naghski as applied above further discloses an optical connector adapter optical connector adapter wherein said substrate holder is formed from one of silicon or glass (col. 4, lines 18-23).

**Claim 8**

Naghski as applied above further discloses comprises a waveguide substrate (optical fiber) implanted (set in the v-groove) within the top reference surface of said substrate (col. 4, lines 18-23).

**Claim 9**

Naghski as applied above further discloses wherein said substrate comprises a semiconductor waveguide substrate (optical fiber), with said at least one optical waveguide comprising silica deposited on the top reference surface of said substrate (col. 4, lines 18-23).

**Claims 10 & 22**

Naghski as applied above further discloses wherein each substrate alignment fiducial comprises an alignment pin at an edge defined by the top and side reference surfaces, and is positioned within a corresponding guide hole in said carrier bracket (col. 4, lines 47-57, Fig. 2, ref. 16).

**Claims 11 & 23**

Naghski as applied above further discloses wherein each carrier alignment fiducial comprises an alignment pin extending outward from said carrier bracket, and is positioned within a corresponding guide hole in said substrate carrier (col. 4, lines 29-46, Fig. 2, refs. 17 & 23).

**Claims 28, 31-39, 42, & 43**

The method is taught by the functions set forth with regards to the apparatus claims 1, 4-12, 16, & 17 as rejected above in view of Naghski.

2. Claims 2, 3, 13, 19, 29, 30, & 40 rejected under 35 U.S.C. 103(a) as being unpatentable over Naghski in view of O'toole and further in view of Kim et al. (USPN '308, hereinafter Kim).

**Claims 2, 3, 13, & 19**

Naghski substantially teaches the claimed invention except that it fails to show wherein at least one optical pump source includes a forward direction optical pump source and a reverse direction optical pump source for said at least one optical waveguide, and wherein the at least one input comprises a first input for interfacing with the forward direction optical pump source and a second input for interfacing with the reverse direction optical pump source. Kim in conjunction with Fig. 3, shows that it is known to provide at least one optical pump source 50 includes a forward direction optical pump source 50 and a reverse direction optical pump source 51 for said at least one optical waveguide, and wherein the at least one input 42 comprises a first input 52 for interfacing with the forward direction optical pump source 50 and a second input 53 for interfacing with the reverse direction optical pump source 51 for a bidirectional optical amplifier 12 (col. 3, lines 48-57). It would have been obvious to someone of ordinary skill in the art to combine the device of Naghski in view of O'toole with the bidirectional optical amplifier of Kim for the purposes of providing pre-amplifying, post amplifying, or in-line repeating of signals within an optical fiber communication system (Kim, col. 1, lines 9-12).

**Claim 29 & 30**

The method is taught by the functions set forth with regards to the apparatus claim 2 & 3 as rejected above in view of Naghski.

**Claim 40**

The method is taught by the functions set forth with regards to the apparatus claim 13 as rejected above in view of Naghski.

3. Claims 15 & 41 rejected under 35 U.S.C. 103(a) as being unpatentable over Naghski in view of O'toole and further in view of Kibler et al. (USPN '768 B2, hereinafter Kibler).

**Claim 15**

Naghski in view of O'toole substantially teaches the claimed invention except that it fails to show wherein the optical coupler comprises an array of optic elements on a surface of said prism. Kibler shows that it is known to provide an array of optic elements on a surface of said prism (col. 2, lines 53-59, Fig. 3) for an optical connector system. It would have been obvious to someone of ordinary skill in the art to combine the device of Naghski in view of O'toole with the diffractive elements of Kibler for the purposes of providing guiding light between optical connector sockets. Accordingly, such modification would have constituted an alternative means/obvious engineering expedience for one of ordinary skill in the art at the time the invention was made.

**Claim 41**

The method is taught by the functions set forth with regards to the apparatus claim 15 as rejected above in view of Naghski.



*Conclusion*

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Harvey et al. (USPN '718 B1) discloses a connector sleeve assembly capable of coupling an optical connector to its top reference surface.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan D. Valentin II whose telephone number is (571) 272-2433. The examiner can normally be reached on Mon.-Fri..

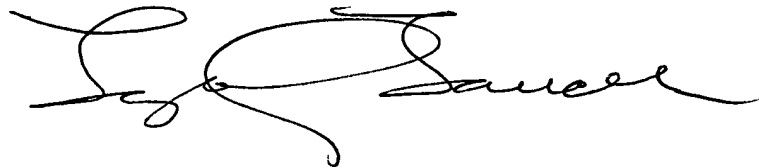
Art Unit: 2877

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Juan D Valentin II  
Examiner 2877  
JDV  
September 1, 2006



**LAYLA G. LAUCHMAN**  
**PRIMARY EXAMINER**